Reviews

An Introduction to the Geology of New South Wales. By C. A. Süssmilch. Pp. 177+xii; figs. 79 and geological map. Sydney: W. A. Gullick, Government printer, 1911.

In 1909 E. F. Pittman brought out his *Epitome of the Geology of New South Wales,* which was welcomed by the geological world as giving in brief space an outline of the geologic history, so far as then known, of that interesting but far-away state. Now we are favored with a fuller and most excellent treatment of the geologic record in detail.

The earliest geologic formations in New South Wales are of limited extent. The oldest fauna yet found is the pelagic Ordovician graptolite fauna which is very poor in other forms. But in the Silurian, which is perhaps the most extensive outcropping formation in New South Wales, there is found a great wealth of fossils indicating conditions favorable to life. The Silurian was terminated and the Devonian inaugurated by pronounced deformative earth movements. In the littoral fauna, brachiopods predominated while trilobites are absent. Their absence is not easily explained, for trilobites flourished in the Silurian and are found in considerable numbers in the Carboniferous, indicating that they had not become extinct. The Devonian was closed by one of the greatest mountain-making epochs in New South Wales. Since then no part of the state, excepting the northeastern section, has been subjected to similar orogenic movements. The present elevation of the strata above sea-leavel is due to vertical uplift only.

A typical Permian formation, analogous to that of the Northern Hemisphere, does not occur in Australia, its place being taken by the so-called Permo-Carboniferous. This name has been applied in Australia to a thick series of marine and fresh-water beds which follow the Carboniferous as Süssmilch uses the term, and which in turn are overlain by fresh-water Triassic strata. An unconformity marks the division into Carboniferous and Permo-Carboniferous—a division which would seem to correspond approximately to the break between the Westphalian and Stephanian in Europe. Rather strangely, not a single member of the Carboniferous flora passed onward into the Permo-Carboniferous. The refrigeration of the climate which took place at

the beginning of the latter period, as indicated by the glacial beds in New South Wales and other parts of Australia, has been suggested as the cause of the marked break between the two floras.

Fresh-water formations characterize the Triassic and Jurassic, but a subsidence with an extensive marine transgression took place in Australia during the Cretaceous, somewhat as in the other continents. But in the Tertiary neither marine nor lacustrine deposits of any importance are known to occur; the geological formations fail to provide an adequate record of the history and much of what is known is inferred from the topographic features. The history ends tamely, for the Pleistocene glaciation in Australia was limited in extent.

Because of the definiteness with which the subject-matter is handled, the book will be extremely useful to students in far-away countries who need the larger features and the bearing of the essential facts brought out clearly but concisely. A chapter is given to each geologic period and each chapter closes with a well-considered summary which emphasizes the most significant features of that particular period. The treatment is judicious and philosophic.

R. T. C.

History of Geology. By HORACE B. WOODWARD. New York: Putnam, 1911. Pp. 204.

This little volume is included in "A History of the Sciences" series, and well accomplishes the purpose of printing a history of geology in small compass. On the whole the work has been well done, but the reader will sometimes be inclined to think that perspective has been lost through the prominence given to English geologists of the pre-observational period. The author's judgment is not always unerring, as for example in the place accorded to the bombastic and imaginative De Luc. The effect of De Luc's activity, as viewed from this distance, would seem to have been chiefly to stem the advance of independent thought by such men as Hutton and Playfair, and to lead the reactionary elements within the church.

W. H. H.

LOWER CRETACEOUS OF MARYLAND

Under the simple title *Lower Cretaceous*, the State Geological Survey of Maryland issues what is in effect a monograph of the Lower Cretaceous formations of the state and their paleontology. For while the work consists mainly of the descriptions of all the fossils hitherto found in